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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,188	03/04/2002	Alan Argento	UOM 0202 PUS	6337

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SOUTHFIELD, MI 48075

EXAMINER
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SAINT SURIN, JACQUES M

ART UNIT	PAPER NUMBER
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2856

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DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/091,188

Applicant(s)

ARGENTO ET AL.

Examiner

Jacques M Saint-Surin

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper-No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Telschow et al. (US Patent 6,134,006) in view of Hashima et al. (US Patent 5,521,843).

Regarding claims 1 and 10, Telschow ('006) discloses a method for measuring vibration of an object (method are disclosed for performing noncontacting measurements that characterize a vibrating image of an object of interest, see: col. 3, lines 1-3), the method comprising:

providing calibration data based on a correlation of a change in distance in a detector plane substantially parallel to physical movement of the object (one technique

for vibrating a specimen such as object of interest 12 is to apply an excitation via a shaker such as a wide bandwidth piezoelectric transducer that is placed in contact with the specimen, or object of interest, to induce vibrational modes of the object of interest 12, see: col. 4, lines 40-45) and also (calibration measurements have been implemented using a piezoelectric translation mirror, the excited vibrational modes of the specimen determine the frequency-dependent displacement amplitude of the surface, see: col. 6, lines 39-42);

generating a plurality of images (light emitter, or laser, 16 generates light that is transmitted along a first beam path generally indicated by reference numeral 20, emitter 16 is configured to produce two or more wavefronts, one wavefront comprising object beam 22 and another wavefront comprising reference beam 24, see: col. 4, lines 50-52 and 61-65) from signals reflected from the object (12) in the detector plane (photorefractive substance 44 comprises a sensing media having a detection resolution, see: col. 6, lines 30-31, see also col. 6, lines 3-10);

measuring energy in the images in the detector plane to produce a plurality of signals (a measurement device, or imaging device, in the form of a photodetector such as a (CCD) camera 50, is used to detect a forward diffracted beam that has been enhanced via the gain of the two-wave mixing process, see: col. 6, lines 51-54 and 57-59 and col. 10, 53-56 ); and processing the plurality of signals with the calibration data to obtain as vibration measurement of the object (as shown in FIG. 5, camera 50 comprises a detector configured to detect the image of a vibrating surface wherein the reflected object beam 122 and the modulated reference beam 124 are combined in

association with the sensing media, or photorefractive substance 44; object beam 122 and reference beam 124 interfere and produce simultaneous vibration measurements distributed over object 12 so as to produce an image of the vibration and display 52 and/or image processing apparatus 58 further aid in visual identification of the detected image of vibration, see: col. 14, lines 13-22). Note that the spaced-apart marks are disclosed as parallel lines or single line in the specification and are also claimed as such. However, Telschow et al. does not specifically disclose an object having a pair of substantially coplanar, spaced-apart marks. Hashima shows in Fig. 1 a target mark 10 comprises a black circle and is mounted on the object 1, see: col. 7, lines 45-48. It would have been obvious to one having ordinary skill in the art to utilize in Telschow et al. the techniques of Hashima et al. as taught above because it would have been obvious to provide a target mark having disk-shaped marks 231-234 disposed on a flat white background 230 and spaced by spaced distances from each other in order to measure the vibration of an object having spaced-marks in a reliable manner.

Regarding claim 10, it is a system claim that recites the means for performing the steps of the method claim 1. Therefore, it is rejected for the reasons set forth for that claim.

Regarding claims 2 and 12, Telschow does not disclose the spaced-apart marks are part of the object. Hashima et al. discloses the target mark is attached to the object, see: col. 29, lines 29-30. It would have been obvious to one having ordinary skill in the art because since the marks are mounted on the object, the distance up to and the attitude of the object can accurately be measured without lowering the resolution even

when the camera faces the object head on thereby, making the above combination more effective.

Regarding claims 3 and 11 Telschow in view of Hashima discloses the target mark is imaged by a small-size CCD camera mounted on the tip of a manipulator (see: col. 29, lines 35-36) to meet the limitations of a marker and the step of marking.

Regarding claims 4, 13 and 14, Telschow discloses beam splitter 18 is located to split a beam of light emitted from light emitter 16 so as to form first beam path and second beam path 30 (see: col. 5, lines 2-4 of Telschow). Also, Telschow in view of Hashima discloses upon being reflected off of surface 14 of vibrating object of interest 12, object beam 22 has been impressed with information defining the given vibration displacement amplitude and vibration phase of object 12 (see: col. 5, lines 60-63 of Telschow). Furthermore, Telschow discloses a photodetector 50 in the form of a CCD camera (see: col. 7, lines 39-40).

Regarding claims 5, 9, 15 and 18, Telschow in view of Hashima discloses when the circle in the three-dimensional space is projected, at least one the straight lines extending diametrically across the circle in the object space extends parallel to the image plane, see: Hashima, col. 26, lines 30-33.

Regarding claim 6-8, 16-17 and 19, Telschow in view of Hashima discloses the marks M1 and M2 are interconnected by a line. Furthermore, the reference discloses the central point thereof is defined by the point of intersection between the boundary lines and can be extracted with high sensitivity (see: col. 29, lines 9-10 of Hashima).

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M Saint-Surin whose telephone number is (703) 308-3698. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.



Jacques M. Saint-Surin  
June 30, 2003

HELEN KWOK  
PRIMARY EXAMINER

